Effectiveness of Feedback in First Year Physics

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EUROPEAN FIRST YEAR EXPERIENCE CONFERENCE 2016

Monday 4th – Wednesday 6th April 2016

ABSTRACT SUBMISSION FORM

Proposals should be submitted to efye@arteveldehs.be by **1 December 2015**.

Speaker(s)	I.G. Bearden(1,2), H. Mathiasen(2), K. Voigt(1,2), J. Dolin(2)
School / Department / Institution	(1)Niels Bohr Institute ; (2) Department of Science Education University of Copenhagen
Biographical details for each speaker (50 words maximum)	
I.G. Bearden, Professor Niels Bohr Institute, responsible for first lab course in physics H. Mathiasen, J. Dolin, Professors, Department of Science Education K. Voigt, student	
Statement of link to the conference theme(s)	
The project we will report on was aimed at improving formative feedback for physics students at the beginning of their studies. We hope to help bridge the gap between upper secondary and university levels by improving feedback and understanding how to teach the students to use the feedback effectively.	
Session/poster title	
Effectiveness of Feedback in First Year Physics	
Session type – ADD LINK TO FORMATS (Workshop, Paper, Show and Tell or Poster). If submitting a workshop or paper, please indicate if you would prefer a 30 or 60 minute slot. We can't guarantee that we will be able to accommodate all preferences.	
Our preference is for a Paper; however, we can also hold a workshop or Show and Tell. If a paper, we prefer 30 minutes; a workshop should be 60 minutes. We are quite flexible regarding the details of the presentation.	
Summary (50-word summary for programme)	
How can we provide better and more effective feedback to our students? How can we encourage students to use feedback effectively? We will present results of a study of first year physics students addressing these questions and comparing the effectiveness of written and screencast feedback.	
Abstract (500 words maximum, not including references if used)	
Timely and "good" feedback is important in helping students improve. Of course, the implicit assumption here is that what instructors consider "good" is actually useful for students and that the students actually devote some cognitive effort to the feedback given.	

At the Niels Bohr Institute (the physics department of the University of Copenhagen) our laboratory instructors devote a large fraction of their time to giving feedback on students' work; however, this has been a frustrating exercise for many of the instructors as it often appears as if the students have not read the feedback. In an attempt to encourage students to make better use of the feedback given and to investigate and analytically compare two feedback, we have followed both instructors (N=7) and students (N≈165) through our introductory mechanics labs. We introduced screencast feedback as a new way of providing comments on the students' lab work. Previously, the feedback consisted solely of written comments.

Accommodating so many students in a single teaching lab requires us to split the students into 6 sessions. Three sessions students received screencast feedback, while the remaining three received written comments on their work.

We are evaluating the results of this comparison using a combination of qualitative (primarily interviews) and quantitative (test based) data. The quantitative data includes measuring differences in academic performance and the frequency with with students subjected to the two methods used the feedback. The qualitative data addresses the students' self-assessment, while our interviews of both instructors and students investigates their evaluation of advantages and disadvantages of the respective method they either received or provided. The quantitative data includes measuring differences in academic performance and the frequency with which the students subjected to the two methods used their feedback.

This presentation will detail the methods used as well as the results. In addition, we will comment on potential barriers to implementing screencast feedback.

References:

Burke, D. & J. Pieterick (2010). *Giving Students Effective Written Feedback.* Maidenhead: Open University Press

Hattie, J. & H. Timperley (2007). The power of feedback in *Review of Educational research,*77 (1)

Mathiasen, H. (2004). Expectations of Technology: When the Intensive Application of IT in Teaching Becomes a Possibility in *Journal of Research on Technology in Education.* 36, 3, p. 273-295.

Mathiasen, H. (2008). Is there a Nexus between Learning and Teaching? – Communication as a Facilitator of Students' Knowledge Construction in *Understanding Learning-Centred Higher Education*. Cph: CBS press

OECD (2005). *Personalising Learning. Paris*: OECD/CERI

Main message of the session: "After this session the participant will know/have experienced/have gained…"

The participant will be familiar with possible forms and formats for feedback to students' written work and will have gained an understanding of how to increase student engagement with the feedback. Furthermore the participants have had the opportunity to reflect on feedback forms and formats from a constructivist lens and from a perspective of developing self-efficacy.

Data projectors are standard, if you have further IT or audio-visual requirements please indicate here.

Any other requirements (please indicate, for example, if you would like to bring additional materials if you are submitting a poster).

Keywords: every presentation will be categorized according to some keywords. Please check the box of the keywords applicable to your session. The keywords are based on interesting EFYE-topics for this conference.

- ☒ Active learning
- ☐ Belonging (socially, academic)
- ☐ Big Data
- ☐ Commuter (or local) students
- ☐ Counselling
- ☐ Curriculum
- ☐ Health and well-being
- ☐ Induction (Orientation)
- ☐ Institutional development
- ☐ International students
- ☐ Language (academic)
- ☐ Learning communities
- ☐ Library
- ☐ Parents
- ☐ Peer mentoring
- ☐ Physical spaces
- ☐ Pre entry
- ☐ Research on FYE
- ☐ Residential students
- ☒ Retention
- ☐ Service learning/volunteering
- ☐ Social cohesion
- ☒ Student diversity
- ☐ Student finance
- ☐ Student perspective
- ☐ Students as partners
- ☐ Study Skills
- ☐ Social Media
- ☒ Technology
- ☒ Transition from highschool/college to HE
- ☐ Transition to second year
- ☐ Work and study

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